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DETAILED DESCRIPTION

[Detailed explanation of a design]

[0001]

[Industrial Application]

This design is related with the rectilinear-motion form motor which changes rotation into rectilinear motion.

[0002]

[Description of the Prior Art]

It has the male screw child who screws in the rotator rotated by exciting conventionally the excitation winding prepared in the stator as a rectilinear-motion form motor which changes rotation of a motor into rectilinear motion, and the female screw child who prepared inside the rotator, and the output shaft which carried out the baffle is established and that to which rectilinear motion of the output shaft is carried out is indicated by rotating a rotator (for example, JP.62-53168A).

[0003]

[Problem(s) to be Solved by the Device]

However, with the conventional technique, in order to perform rotation of a rotator through screwing of a male screw child and a female screw child, even if it was large, and lubrication was required or the friction loss of screws used the comparatively small ball screw of friction loss, it was not avoided that the effectiveness of equipment falls and it had the fault that equipment became expensive.

This design aims at offering the rectilinear-motion form motor with high effectiveness it was made for friction loss not to generate into the screwing part of a screw, when changing into rectilinear motion from rotation.

[0004]

[Means for Solving the Problem]

The stator of the rotation form motor which fixed this design inside the hollow-like frame in order to solve the above-mentioned problem, In the

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CLAIMS

[Utility model registration claim]

[Claim 1] The rotator which countered through the opening the stator of the rotation form motor fixed inside the hollow-like frame, and inside said stator, and was supported free [rotation] through bearing. In the rectilinear-motion form motor equipped with the inverter which changes rotation of said rotator into rectilinear motion The spiral-like inside heights which formed said inverter in the predetermined pitch inside said rotator which consists of the bell shape magnetic substance, and said rotator, The shaft which prepared the outside heights of the shape of a spiral established in the same pitch as said inside heights which counter through an opening in the periphery, It constitutes from a permanent magnet magnetized so that it might prepare along with the peripheral face of the outside heights of the shape of a spiral of said shaft and a front face might become N pole and the south pole by turns for every round. The rectilinear-motion form motor characterized by having fixed either said frame or said shaft to the fixed portion, and supporting either said shaft or said frame to a fixed portion possible [sliding of only the shaft orientations of said shaft].

[Translation done.]

Japanese Utility Model
Application No.
41857/1993
Laid-open No. 9061
/1995

52 may be countered through an opening, and the synchronous motor of a permanent magnet form is formed. The inside heights 62 which project in the shape of a spiral in a predetermined pitch are formed in the inner circumference of a rotator 6.

Moreover, the outside heights 71 which project in the shape of [which counters in the same pitch as the spiral-like inside heights 62 which formed / fixed through the supporter 11 / the shaft 7 extended in parallel to a rail 2 on the base 1 in the rotator 6 at the peripheral face of a shaft 7] a spiral are formed. The permanent magnet 8 magnetized so that a front face might become N pole and the south pole for every round is formed in the periphery of the outside heights 71.

If a stator winding 51 is excited and a rotator 6 is rotated, the magnetic-attraction force will act between the permanent magnet 8 of the shape of a spiral fixed to the shaft 7, and the inside heights 62 of the shape of a spiral established inside the rotator 6, a rotator 6 will follow on rotating, and the inside heights 62 will move to shaft orientations along with a permanent magnet 8. Since the inside heights 62 move to shaft orientations, a stator 5 moves along with a rail 2. That is, rotation of a rotator 6 is changed by rectilinear motion by the spiral-like permanent magnet 8 and magnetic association of the inside heights 62.

In addition, although it slid on the rail top parallel to the shaft which fixed the shaft on the base and prepared the frame on the base in the above-mentioned example, since a shaft and a frame serve as relative movement, it slides on a shaft only at shaft orientations, and a frame may be fixed on the base.

Moreover, although he is trying to fix a shaft to the supporter on the base which is a fixed portion in the above-mentioned example, especially the base forms a supporter in fixed portions, such as a frame, and you may make it fix it to them, without preparing.

[0007]

[Effect of the Device]

As stated above, since it is changed into rectilinear motion by non-contact association according to rotation of a rotator to a spiral-like permanent magnet and magnetic association of inside heights, the friction loss of the conversion part from rotation to rectilinear motion is effective in that it becomes unnecessary to use expensive equipment like a ball thread, and friction loss can offer a small cheap rectilinear-motion form motor according to this design while it is lost.

[Translation done.]

rectilinear-motion form motor equipped with the rotator which countered through the opening inside said stator, and was supported free [rotation] through bearing, and the inverter which changes rotation of said rotator into rectilinear motion. The spiral-like inside heights which formed said inverter in the predetermined pitch inside said rotator which consists of the bell shape magnetic substance, and said rotator. The shaft which prepared the outside heights of the shape of a spiral established in the same pitch as said inside heights which counter through an opening in the periphery. It constitutes from a permanent magnet magnetized so that it might prepare along with the peripheral face of the outside heights of the shape of a spiral of said shaft and a front face might become N pole and the south pole by turns for every round. Either said frame or said shaft is fixed to a fixed portion, and either said shaft or said frame is supported to a fixed portion possible [sliding of only the shaft orientations of said shaft].

[0005]

[Function]

If a stator winding is excited and a rotator is rotated with the above-mentioned means, the magnetic-attraction force acts between the permanent magnet of the shape of a spiral fixed to the shaft, and the inside heights of the shape of a spiral established inside the rotator, a rotator will follow on rotating, inside heights and a permanent magnet will carry out relative motion to shaft orientations, and a rotator and a shaft will motion relatively to shaft orientations. When a shaft is fixed to a fixed portion, a rotator moves to shaft orientations, and when a frame is fixed to a fixed portion, a shaft moves to shaft orientations. All are changed into rectilinear motion when spiral-like a permanent magnet and inside heights carry out magnetic association of the rotation of a rotator by non-contact.

[0006] [Example]

The example which shows this design in drawing is explained.

The sectional side elevation in which drawing 1 shows the example of this design, and drawing 2 are forward sectional views, form a rail 2 on the base 1, and have laid the frame 4 of the shape of hollow of the motor 3 of a rotation form possible [sliding] along with the rail 2. The stator 5 which becomes from the bell shape magnetic substance which has a stator winding 51 inside a frame 4 is formed, and the magnetic pole section 52 is formed inside the stator 5. A bracket 53 is formed in the both-ends side of a stator 5, and the rotator 6 which becomes from the bell shape magnetic substance inside a stator 5 through bearing 54 is formed. The rotator magnetic pole 61 which consists of a permanent magnet which ***** (ed) to ** which becomes a circumferential direction with N pole and the south pole by turns is formed in the periphery of a rotator 6 so that the magnetic pole section

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PRIOR ART

[Description of the Prior Art]

It has the male screw child who screws in the rotator rotated by exciting conventionally the excitation winding prepared in the stator as a rectilinear-motion form motor which changes rotation of a motor into rectilinear motion, and the female screw child who prepared inside the rotator, and the output shaft which carried out the baffle is established and that to which rectilinear motion of the output shaft is carried out is indicated by rotating a rotator (for example, JP,62-53168,A).

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TECHNICAL FIELD

[Industrial Application]

This design is related with the rectilinear-motion form motor which changes rotation into rectilinear motion.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Device]

However, with the conventional technique, in order to perform rotation of a rotator through screwing of a male screw child and a female screw child, even if it was large, and lubrication was required or the friction loss of screws used the comparatively small ball screw of friction loss, it was not avoided that the effectiveness of equipment falls and it had the fault that equipment became expensive.

This design aims at offering the rectilinear-motion form motor with high effectiveness it was made for friction loss not to generate into the screwing part of a screw, when changing into rectilinear motion from rotation.

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EFFECT OF THE INVENTION

[Effect of the Device]

As stated above, since it is changed into rectilinear motion by non-contact association according rotation of a rotator to a spiral-like permanent magnet and magnetic association of inside heights, the friction loss of the conversion part from rotation to rectilinear motion is effective in that it becomes unnecessary to use expensive equipment like a ball thread, and friction loss can offer a small cheap rectilinear-motion form motor according to this design while it is lost.

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OPERATION**[Function]**

If a stator winding is excited and a rotator is rotated with the above-mentioned means, the magnetic-attraction force acts between the permanent magnet of the shape of a spiral fixed to the shaft, and the inside heights of the shape of a spiral established inside the rotator, a rotator will follow on rotating, inside heights and a permanent magnet will carry out relative motion to shaft orientations, and a rotator and a shaft will motion relatively to shaft orientations. When a shaft is fixed to a fixed portion, a rotator moves to shaft orientations, and when a frame is fixed to a fixed portion, a shaft moves to shaft orientations. All are changed into rectilinear motion when spiral-like a permanent magnet and inside heights carry out magnetic association of the rotation of a rotator by non-contact.

[0006]

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MEANS**[Means for Solving the Problem]**

The stator of the rotation form motor which fixed this design inside the hollow-like frame in order to solve the above-mentioned problem, In the rectilinear-motion form motor equipped with the rotator which countered through the opening inside said stator, and was supported free [rotation] through bearing, and the inverter which changes rotation of said rotator into rectilinear motion The spiral-like inside heights which formed said inverter in the predetermined pitch inside said rotator which consists of the bell shape magnetic substance, and said rotator, The shaft which prepared the outside heights of the shape of a spiral established in the same pitch as said inside heights which counter through an opening in the periphery, It constitutes from a permanent magnet magnetized so that it might prepare along with the peripheral face of the outside heights of the shape of a spiral of said shaft and a front face might become N pole and the south pole by turns for every round. Either said frame or said shaft is fixed to a fixed portion, and either said shaft or said frame is supported to a fixed portion possible [sliding of only the shaft orientations of said shaft].

[0005]

[Translation done.]

and the inside heights 62 will move to shaft orientations along with a permanent magnet 8. Since the inside heights 62 move to shaft orientations, a stator 5 moves along with a rail 2. That is, rotation of a rotator 6 is changed by rectilinear motion by the spiral-like permanent magnet 8 and magnetic association of the inside heights 62.

In addition, although it slid on the rail top parallel to the shaft which fixed the shaft on the base and prepared the frame on the base in the above-mentioned example, since a shaft and a frame serve as relative movement, it slides on a shaft only at shaft orientations, and a frame may be fixed on the base.

Moreover, although he is trying to fix a shaft to the supporter on the base which is a fixed portion in the above-mentioned example, especially the base forms a supporter in fixed portions, such as a frame, and you may make it fix it to them, without preparing.

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EXAMPLE

[Example]

The example which shows this design in drawing is explained.

The sectional side elevation in which drawing 1 shows the example of this design, and drawing 2 are forward sectional views, form a rail 2 on the base 1, and have laid the frame 4 of the shape of hollow of the motor 3 of a rotation form possible [sliding] along with the rail 2. The stator 5 which becomes from the bell shape magnetic substance which has a stator winding 51 inside a frame 4 is formed, and the magnetic pole section 52 is formed inside the stator 5. A bracket 53 is formed in the both-ends side of a stator 5, and the rotator 6 which becomes from the bell shape magnetic substance inside a stator 5 through bearing 54 is formed. The rotator magnetic pole 61 which consists of a permanent magnet which ***** (ed) to ** which becomes a circumferential direction with N pole and the south pole by turns is formed in the periphery of a rotator 6 so that the magnetic pole section 52 may be countered through an opening, and the synchronous motor of a permanent magnet form is formed. The inside heights 62 which project in the shape of a spiral in a predetermined pitch are formed in the inner circumference of a rotator 6.

Moreover, the outside heights 71 which project in the shape of [which counters in the same pitch as the spiral-like inside heights 62 which formed / fixed through the supporter 11 / the shaft 7 extended in parallel to a rail 2 on the base 1 in the rotator 6 at the peripheral face of a shaft 7] a spiral are formed. The permanent magnet 8 magnetized so that a front face might become N pole and the south pole for every round is formed in the periphery of the outside heights 71.

If a stator winding 51 is excited and a rotator 6 is rotated, the magnetic-attraction force will act between the permanent magnet 8 of the shape of a spiral fixed to the shaft 7, and the inside heights 62 of the shape of a spiral established inside the rotator 6, a rotator 6 will follow on rotating,

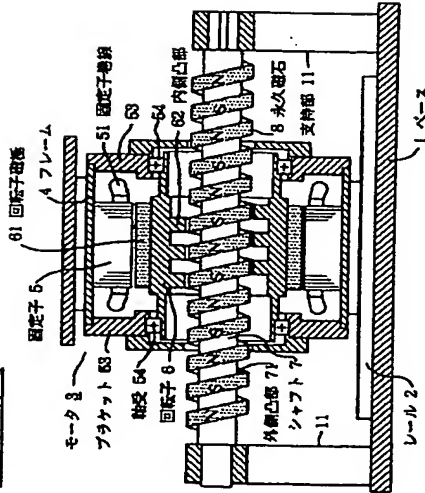
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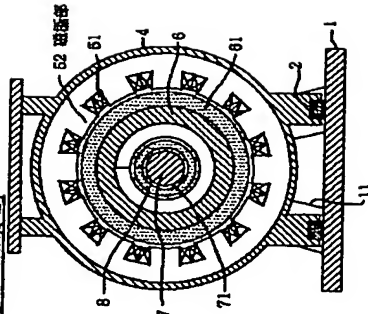
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DRAWINGS

[Drawing 1]



[Drawing 2]



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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the sectional side elevation showing the example of this design.

[Drawing 2] It is the forward sectional view showing the example of this design.

[Description of Notations]

1 Base, 11 Supporter, 2 Rail, 3 Motor, 4 Frame, 5 Stator, 51 Stator Winding, 52 Magnetic Pole Section, 53 Bracket, 54 Bearing, 61 Rotators, 61 Rotator Magnetic Pole, 62 Inside Heights, 7 Shaft, 71 Outside Heights, 8 Permanent Magnet

[Translation done.]